What is claimed is:

1. A method for treating a subterranean formation penetrated by a well bore to reduce its permeability to aqueous-based fluids comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a hydrophobically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms; and

contacting the subterranean formation with the permeability-modifying aqueous treatment fluid.

2. The method of claim 1 wherein contacting the subterranean formation with the permeability-modifying aqueous treatment fluid involves injecting the permeability-modifying aqueous treatment fluid into the subterranean formation.

3. The method of claim 1 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

4. The method of claim 1 wherein the hydrophobically modified water-soluble polymer has a molecular weight in the range of from about 100,000 to about 10,000,000.

5. The method of claim 1 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

6. The method of claim 1 wherein the hydrophobically modified water-soluble polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.02% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

7. The method of claim 1 wherein the hydrophobically modified water-soluble polymer is a reaction product of a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms and a hydrophobic compound.

8. The method of claim 7 wherein the hydrophilic polymer comprises a cellulose, a chitosan, a polyamide, a polyetheramine, a polyethyleneimine, a polyhydroxyetheramine, a polylysine, a polysulfone, or a starch.

9. The method of claim 8 wherein the starch comprises a cationic starch.

10. The method of claim 7 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

11. The method of claim 10 wherein the organic acid derivative comprises an octenyl succinic acid; a dodecenyl succinic acid; or an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

12. The method of claim 7 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

13. The method of claim 1 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

14. The method of claim 1 further comprising the step of injecting a fracture stimulation fluid into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein after injection of the permeability-modifying aqueous treatment fluid into the formation.

15. The method of claim 1 further comprising the step of injecting a hydrocarbon liquid or a gas into the subterranean formation after injection of the permeability-modifying aqueous treatment fluid.

16. The method of claim 1 further comprising the step of injecting a well treatment fluid comprising a mutual solvent into the subterranean formation prior to injection of the permeability-modifying aqueous treatment fluid.

17. A method for treating a subterranean formation penetrated by a well bore to reduce its permeability to aqueous-based fluids comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms,

a hydrophobic compound capable of reacting with the hydrophilic polymer, and

a surfactant; and

contacting the subterranean formation with the permeability-modifying aqueous treatment fluid.

18. The method of claim 17 wherein contacting the subterranean formation with the permeability-modifying aqueous treatment fluid involves injecting the permeability-modifying aqueous treatment fluid into the subterranean formation.

19. The method of claim 17 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

20. The method of claim 17 further comprising the step of the hydrophilic polymer and the hydrophobic compound reacting *in situ* to form a hydrophobically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms.

21. The method of claim 20 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

22. The method of claim 17 wherein the hydrophilic polymer comprises a cellulose, a chitosan, a polyamide, a polyetheramine, a polyethyleneimine, a polyhydroxyetheramine, a polylysine, a polysulfone, or a starch.

23. The method of claim 17 wherein the polar heteroatoms present within the polymer backbone of the hydrophilic polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

24. The method of claim 17 wherein the hydrophilic polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.1% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

25. The method of claim 17 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

26. The method of claim 17 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

27. The method of claim 17 wherein the hydrophobic compound is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.01% to about 5% by weight of the permeability-modifying aqueous treatment fluid.

28. The method of claim 17 wherein the surfactant comprises an anionic, a cationic, an amphoteric, or a neutral surfactant.

29. The method of claim 17 wherein the surfactant is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.1% to about 2.0% by weight of the permeability-modifying aqueous treatment fluid.

30. The method of claim 17 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

31. The method of claim 17 wherein the permeability-modifying aqueous treatment fluid further comprises a pH-adjusting agent that adjusts the pH to at least about 8.

32. The method of claim 31 wherein the pH-adjusting agent comprises a buffer, an alkali metal hydroxide, an alkali metal carbonate, or an alkali metal phosphate.

33. The method of claim 17 further comprising the step of shutting the well bore for a period of from about 1 minute to about 24 hours.

34. The method of claim 17 further comprising the step of injecting a fracture stimulation fluid into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein after injection of the permeability-modifying aqueous treatment fluid into the formation.

35. A method for fracturing a subterranean formation comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a hydrophobically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms; and

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

36. The method of claim 35 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

37. The method of claim 35 wherein the hydrophobically modified water-soluble polymer has a molecular weight in the range of from about 100,000 to about 10,000,000.

38. The method of claim 35 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

39. The method of claim 35 wherein the hydrophobically modified water-soluble polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.02% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

40. The method of claim 35 wherein the hydrophobically modified water-soluble polymer is a reaction product of a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms and a hydrophobic compound.

41. The method of claim 40 wherein the hydrophilic polymer comprises a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, or a starch.

42. The method of claim 41 wherein the starch comprises a cationic starch.

43. The method of claim 40 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

44. The method of claim 43 wherein the organic acid derivative comprises an octenyl succinic acid; a dodecenyl succinic acid; or an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

45. The method of claim 40 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

46. The method of claim 35 wherein the aqueous treatment fluid further comprises a gelling agent.

47. The method of claim 46 wherein the gelling agent comprises a galactomannan gelling agent.

48. The method of claim 46 wherein the aqueous treatment fluid further comprises proppant.

49. The method of claim 35 further comprising the step of injecting a fracture stimulation fluid into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

50. The method of claim 49 wherein the aqueous treatment fluid is injected into the subterranean formation prior to the fracture stimulation fluid.

51. The method of claim 49 wherein the aqueous treatment fluid is injected into the subterranean formation simultaneously with the fracture stimulation fluid.

52. The method of claim 51 wherein the fracture stimulation fluid is gelled.

53. The method of claim 52 wherein the gelled fracture stimulation fluid comprises proppant.

54. The method of claim 52 wherein the gelled fracture stimulation fluid is crosslinked.

55. A method for fracturing a subterranean formation comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms,

a hydrophobic compound capable of reacting with the hydrophilic polymer, and

a surfactant; and

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

56. The method of claim 55 further comprising the step of the hydrophilic polymer and the hydrophobic compound reacting *in situ* to form a hydrophobically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms.

57. The method of claim 56 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

58. The method of claim 55 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

59. The method of claim 55 wherein the hydrophilic polymer comprises a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, or a starch.

60. The method of claim 55 wherein the polar heteroatoms present within the polymer backbone of the hydrophilic polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

61. The method of claim 55 wherein the hydrophilic polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.1% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

62. The method of claim 55 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

63. The method of claim 55 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

64. The method of claim 55 wherein the hydrophobic compound is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.01% to about 5% by weight of the permeability-modifying aqueous treatment fluid.

65. The method of claim 55 wherein the surfactant comprises an anionic, a cationic, an amphoteric, or a neutral surfactant.

66. The method of claim 55 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

67. The method of claim 66 wherein the gelling agent comprises a galactomannan gelling agent.

68. The method of claim 66 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

69. The method of claim 55 wherein the permeability-modifying aqueous treatment fluid further comprises a pH-adjusting agent that adjusts the pH to at least about 8.

70. The method of claim 55 further comprising the step of injecting a fracture stimulation fluid into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

71. The method of claim 70 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation prior to the fracture stimulation fluid.

72. The method of claim 70 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation simultaneously with the fracture stimulation fluid.

73. The method of claim 70 wherein the fracture stimulation fluid is gelled.

74. The method of claim 73 wherein the gelled fracture stimulation fluid comprises proppant.

75. The method of claim 73 wherein the gelled fracture stimulation fluid is crosslinked.

76. The method of claim 55 further comprising the step of shutting the well bore for a period of from about 1 minute to about 24 hours after injection of the permeability-modifying aqueous treatment fluid.

77. A method of acidizing a subterranean formation penetrated by a well bore comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a relative permeability modifier comprising a hydrophobically modified water-soluble polymer that comprises polar heteroatoms within the polymer backbone or a hydrophilically modified water-soluble polymer;

providing an acidizing treatment fluid;

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation; and

injecting the acidizing treatment fluid into the subterranean formation.

78. The method of claim 77 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

79. The method of claim 77 wherein the relative permeability modifier reduces the permeability of the treated zone of the subterranean formation to aqueous-based fluids, thereby diverting the acidizing treatment fluid to other zones of the subterranean formation.

80. The method of claim 77 wherein the relative permeability modifier has a molecular weight in the range of from about 100,000 to about 10,000,000.

81. The method of claim 77 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

82. The method of claim 77 wherein the hydrophobically modified water-soluble polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.02% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

83. The method of claim 77 wherein the hydrophobically modified water-soluble polymer is a reaction product of a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms and a hydrophobic compound.

84. The method of claim 83 wherein the hydrophilic polymer comprises a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, or a starch.

85. The method of claim 84 wherein the starch comprises a cationic starch.

86. The method of claim 83 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

87. The method of claim 86 wherein the organic acid derivative comprises an octenyl succinic acid; a dodecenyl succinic acid; or an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

88. The method of claim 83 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

89. The method of claim 77 wherein the hydrophilically modified water-soluble polymer is a reaction product of a hydrophilic polymer and a hydrophilic compound.

90. The method of claim 89 wherein the hydrophilically modified water-soluble polymer comprises a polymer backbone comprising polar heteratoms.

91. The method of claim 90 wherein the wherein the polar heteroatoms present within the polymer backbone of the hydrophilically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

92. The method of claim 89 wherein the hydrophilic polymer comprises dialkyl amino pendant groups.

93. The method of claim 89 wherein the hydrophilic polymer comprises a dimethyl amino pendant group and at least one monomer comprising dimethylaminoethyl methacrylate or dimethylaminopropyl methacrylamide.

94. The method of claim 89 wherein the hydrophilic polymer comprises a polyvinylamine, a poly(vinylamine/vinyl alcohol), or an alkyl acrylate polymer.

95. The method of claim 89 wherein the hydrophilic polymer comprises polydimethylaminoethyl methacrylate, polydimethylaminopropyl methacrylamide, poly(acrylamide/dimethylaminoethyl methacrylate), poly(acrylic acid/dimethylaminoethyl methacrylate), poly(methacrylic acid/dimethylaminoethyl methacrylate), poly(2-acrylamido-2-methyl propane sulfonic acid/dimethylaminoethyl methacrylate), poly(acrylamide/dimethylaminopropyl methacrylamide), poly(acrylic acid/dimethylaminopropyl methacrylamide), or poly(methacrylic acid/dimethylaminopropyl methacrylamide).

96. The method of claim 89 wherein the hydrophilic polymer comprises a polymer backbone comprising polar heteroatoms.

97. The method of claim 96 wherein the polar heteroatoms present within the polymer backbone of the hydrophilic polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

98. The method of claim 96 wherein the hydrophilic polymer comprises a cellulose, a chitosan, a polyamide, a polyetheramine, a polyethyleneimine, a polyhydroxyetheramine, a polylysine, a polysulfone, or a starch.

99. The method of claim 98 wherein the starch comprises a cationic starch.

100. The method of claim 89 wherein the hydrophilic compound comprises a polyether comprising halogen; a sulfonate; a sulfate; or an organic acid derivative.

101. The method of claim 100 wherein the organic acid derivative comprises an octenyl succinic acid; a dodecenyl succinic acid; or an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

102. The method of claim 100 wherein the polyether comprises a polyethylene oxide, a polypropylene oxide, a polybutylene oxide, or a mixture thereof.

103. The method of claim 100 wherein the polyether comprises an epichlorohydrin terminated polyethylene oxide methyl ether.

104. The method of claim 100 wherein the weight ratio of the hydrophilic polymer to the polyether is in the range of from about 1:1 to about 10:1.

105. The method of claim 89 wherein the hydrophilically modified water-soluble polymer comprises a reaction product of polydimethylaminoethyl methacrylate with epichlorohydrin terminated polyethyleneoxide methyl ether; a reaction product of polydimethylaminopropyl methacrylamide with epichlorohydrin terminated polyethyleneoxide methyl ether; or a reaction product of poly(acrylamide/dimethylaminopropyl methacrylamide) with epichlorohydrin terminated polyethyleneoxide methyl ether.

106. The method of claim 105 wherein the hydrophilically modified water-soluble polymer comprises a reaction product of a polydimethylaminoethyl methacrylate with epichlorohydrin terminated polyethyleneoxide methyl ether having a weight ratio of polydimethylaminoethyl methacrylate to epichlorohydrin terminated polyethyleneoxide methyl ether of 3:1.

107. The method of claim 77 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

108. The method of claim 107 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

109. The method of claim 77 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

110. The method of claim 77 wherein the acidizing treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

111. The method of claim 77 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation prior to the acidizing treatment fluid.

112. The method of claim 77 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation simultaneously with the acidizing treatment fluid.

113. A method of acidizing a subterranean formation penetrated by a well bore comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms,

a hydrophobic compound capable of reacting with the hydrophilic polymer, and

a surfactant;

providing an acidizing treatment fluid;

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation; and

injecting the acidizing treatment fluid into the subterranean formation.

114. The method of claim 113 further comprising the step of the hydrophilic polymer and the hydrophobic compound reacting *in situ* to form a hydrophobically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms.

115. The method of claim 114 wherein the hydrophobically modified water-soluble polymer reduces the permeability of the subterranean formation to aqueous-based based fluids, thereby diverting the acidizing treatment fluid to other zones of the subterranean formation.

116. The method of claim 114 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

117. The method of claim 113 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

118. The method of claim 113 wherein the hydrophilic polymer comprises a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, or a starch.

119. The method of claim 113 wherein the polar heteroatoms present within the polymer backbone of the hydrophilic polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

120. The method of claim 113 wherein the hydrophilic polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.1% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

121. The method of claim 113 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

122. The method of claim 113 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

123. The method of claim 113 wherein the hydrophobic compound is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.01% to about 5% by weight of the permeability-modifying aqueous treatment fluid.

124. The method of claim 113 wherein the surfactant comprises an anionic, a cationic, an amphoteric, or a neutral surfactant.

125. The method of claim 113 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

126. The method of claim 125 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

127. The method of claim 113 wherein the permeability-modifying aqueous treatment fluid further comprises a pH-adjusting agent that adjusts the pH to at least about 8.

128. The method of claim 113 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

129. The method of claim 113 wherein the acidizing treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

130. The method of claim 113 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation prior to the acidizing treatment fluid.

131. The method of claim 113 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation simultaneously with the acidizing treatment fluid.

132. The method of claim 113 further comprising the step of shutting the well bore after injection of the permeability-modifying aqueous treatment fluid into the subterranean formation for a period of from about 1 minute to about 24 hours.

133. A method of acidizing a subterranean formation penetrated by a well bore comprising the steps of:

providing a permeability-modifying aqueous treatment fluid comprising

a hydrophilic polymer, and

a hydrophilic compound capable of reacting with the hydrophilic polymer;

providing an acidizing treatment fluid;

injecting the permeability-modifying aqueous treatment fluid into the subterranean formation, and

injecting the acidizing treatment fluid into the subterranean formation.

134. The method of claim 133 further comprising the step of the hydrophilic polymer and the hydrophilic compound reacting *in situ* to form a hydrophilically modified water-soluble polymer.

135. The method of claim 134 wherein the hydrophilically modified water-soluble polymer reduces the permeability of the subterranean formation to aqueous-based based fluids, thereby diverting the acidizing treatment fluid to other zones of the subterranean formation.

136. The method of claim 134 wherein the hydrophilically modified water-soluble polymer comprises a polymer backbone comprising polar heteroatoms.

137. The method of claim 136 wherein the polar heteroatoms present within the polymer backbone of the hydrophilically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

138. The method of claim 133 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

139. The method of claim 133 wherein the hydrophilic polymer comprises dialkyl amino pendant groups.

140. The method of claim 133 wherein the hydrophilic polymer comprises a dimethyl amino pendant group and at least one monomer comprising dimethylaminoethyl methacrylate or dimethylaminopropyl methacrylamide.

141. The method of claim 133 wherein the hydrophilic polymer comprises a polyvinylamine, a poly(vinylamine/vinyl alcohol), or an alkyl acrylate polymer.

142. The method of claim 133 wherein the hydrophilic polymer comprises a polymer backbone comprising polar heteroatoms.

143. The method of claim 142 wherein the polar heteroatoms present within the polymer backbone of the hydrophilic polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

144. The method of claim 142 wherein the hydrophilic polymer comprises a cellulose, a chitosan, a polyamide, a polyetheramine, a polyethyleneimine, a polyhydroxyetheramine, a polylysine, a polysulfone, or a starch.

145. The method of claim 133 wherein the hydrophilic polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.1% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

146. The method of claim 133 wherein the hydrophilic compound comprises a polyether comprising halogen; a sulfonate; a sulfate; or an organic acid derivative.

147. The method of claim 146 wherein the polyether comprises a polyethylene oxide, a polypropylene oxide, a polybutylene oxide, or a mixture thereof.

148. The method of claim 133 wherein the hydrophilic compound is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.01% to about 5% by weight of the permeability-modifying aqueous treatment fluid.

149. The method of claim 134 wherein the hydrophilically modified water-soluble polymer comprises a reaction product of polydimethylaminoethyl methacrylate with epichlorohydrin terminated polyethyleneoxide methyl ether; a reaction product of polydimethylaminopropyl methacrylamide with epichlorohydrin terminated polyethyleneoxide methyl ether; or a reaction product of poly(acrylamide/dimethylaminopropyl methacrylamide) with epichlorohydrin terminated polyethyleneoxide methyl ether.

150. The method of claim 133 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

151. The method of claim 150 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

152. The method of claim 133 wherein the permeability-modifying aqueous treatment fluid further comprises a pH-adjusting agent that adjusts the pH to at least about 8.

153. The method of claim 133 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

154. The method of claim 133 wherein the acidizing treatment fluid is injected into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

155. The method of claim 133 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation prior to the acidizing treatment fluid.

156. The method of claim 133 wherein the permeability-modifying aqueous treatment fluid is injected into the subterranean formation simultaneously with the acidizing treatment fluid.

157. The method of claim 133 further comprising the step of shutting the well bore after injection of the permeability-modifying aqueous treatment fluid into the subterranean formation for a period of from about 1 minute to about 24 hours.

158. A permeability-modifying aqueous treatment fluid comprising

a hydrophobically modified water-soluble polymer that comprises a polymer backbone comprising polar heteroatoms.

159. The method of claim 158 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

160. The permeability-modifying aqueous treatment fluid of claim 158 wherein the hydrophobically modified water-soluble polymer has a molecular weight in the range of from about 100,000 to about 10,000,000.

161. The permeability-modifying aqueous treatment fluid of claim 158 wherein the polar heteroatoms present within the polymer backbone of the hydrophobically modified water-soluble polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

162. The permeability-modifying aqueous treatment fluid of claim 158 wherein the hydrophobically modified water-soluble polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.02% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

163. The permeability-modifying aqueous treatment fluid of claim 158 wherein the hydrophobically modified water-soluble polymer is a reaction product of a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms and a hydrophobic compound.

164. The permeability-modifying aqueous treatment fluid of claim 163 wherein the hydrophilic polymer comprises a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, or a starch.

165. The permeability-modifying aqueous treatment fluid of claim 164 wherein the starch comprises a cationic starch.

166. The permeability-modifying aqueous treatment fluid of claim 163 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

167. The permeability-modifying aqueous treatment fluid of claim 166 wherein the organic acid derivative comprises an octenyl succinic acid; a dodecenyl succinic acid; or an anhydride, ester, or amide of octenyl succinic acid or dodecenyl succinic acid.

168. The permeability-modifying aqueous treatment fluid of claim 163 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

169. The permeability-modifying aqueous treatment fluid of claim 158 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

170. The permeability-modifying aqueous treatment fluid of claim 169 wherein the gelling agent comprises a galactomannan gelling agent.

171. The permeability-modifying aqueous treatment fluid of claim 169 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

172. A permeability-modifying aqueous treatment fluid comprising:

a hydrophilic polymer that comprises a polymer backbone comprising polar heteroatoms;

a hydrophobic compound capable of reacting with the hydrophilic polymer; and

a surfactant.

173. The method of claim 172 wherein the permeability-modifying aqueous treatment fluid further comprises an aqueous-based fluid.

174. The permeability-modifying aqueous treatment fluid of claim 172 wherein the hydrophilic polymer comprises a cellulose, a polyamide, a polyetheramine, a polyhydroxyetheramine, a polysulfone, or a starch.

175. The permeability-modifying aqueous treatment fluid of claim 172 wherein the polar heteroatoms present within the polymer backbone of the hydrophilic polymer comprise oxygen, nitrogen, sulfur, or phosphorous.

176. The permeability-modifying aqueous treatment fluid of claim 172 wherein the hydrophilic polymer is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.1% to about 10% by weight of the permeability-modifying aqueous treatment fluid.

177. The permeability-modifying aqueous treatment fluid of claim 172 wherein the hydrophobic compound comprises an alkyl halide, a sulfonate, a sulfate, or an organic acid derivative.

178. The permeability-modifying aqueous treatment fluid of claim 172 wherein the hydrophobic compound has an alkyl chain length of from about 4 to about 22 carbons.

179. The permeability-modifying aqueous treatment fluid of claim 172 wherein the hydrophobic compound is present in the permeability-modifying aqueous treatment fluid in an amount in the range of from about 0.01% to about 5% by weight of the permeability-modifying aqueous treatment fluid.

180. The permeability-modifying aqueous treatment fluid of claim 172 wherein the surfactant comprises an anionic, a cationic, an amphoteric, or a neutral surfactant.

181. The permeability-modifying aqueous treatment fluid of claim 172 wherein the surfactant is present in the permeability-modifying aqueous treatment fluid in an amount in the

range of from about 0.1% to about 1.0% by weight of the permeability-modifying aqueous treatment fluid.

182. The permeability-modifying aqueous treatment fluid of claim 172 wherein the permeability-modifying aqueous treatment fluid further comprises a gelling agent.

183. The permeability-modifying aqueous treatment fluid of claim 182 wherein the gelling agent is present in the permeability-modifying aqueous treatment fluid in the range of from about 0.06% to about 0.72% by weight of the permeability-modifying aqueous treatment fluid.

184. The permeability-modifying aqueous treatment fluid of claim 182 wherein the permeability-modifying aqueous treatment fluid further comprises proppant.

185. The permeability-modifying aqueous treatment fluid of claim 172 wherein the permeability-modifying aqueous treatment fluid further comprises a pH-adjusting agent that adjusts the pH to at least about 8.

186. The permeability-modifying aqueous treatment fluid of claim 185 wherein the pH-adjusting agent comprises a buffer, an alkali metal hydroxide, an alkali metal carbonate, or an alkali metal phosphate.